

# AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application:

1 1. (Currently Amended) A method for detecting a signal burst transmitted on the initiative  
2 of a sender on a radio channel listened to by a receiver system, the transmitted burst representing  
3 a predetermined digital sequence, in which method channel parameters representing a statistical  
4 behavior of the radio channel are estimated and a signal burst detection magnitude is evaluated  
5 on the basis of the estimated channel parameters and of a correlation between a signal received at  
6 the receiver system and the predetermined digital sequence, wherein said estimated channel  
7 parameters comprise moments of order greater than 2 of the gain on the radio channel.

1 2. (Cancelled)

1 3. (Original) The method as claimed in claim 1, in which the signal received is subjected to  
2 a filtering matched to the predetermined digital sequence so as to obtain said correlation in the  
3 form of a complex signal having a first component on an in-phase path and a second component  
4 on a quadrature path.

1 4. (Original) The method as claimed in claim 3, in which the evaluated detection magnitude  
2 is proportional to  $\left( \sum_{n=0}^k \frac{1}{n!(\sqrt{N_0})^n} \cdot H_n \left( \frac{z_x}{\sqrt{N_0}} \right) \cdot ma_{x,n} \right) \cdot \left( \sum_{n=0}^k \frac{1}{n!(\sqrt{N_0})^n} \cdot H_n \left( \frac{z_y}{\sqrt{N_0}} \right) \cdot ma_{y,n} \right)$ , where  
3  $N_0$  denotes the estimated power of the noise on the radio channel,  $z_x$  and  $z_y$  denote said first and  
4 second components,  $ma_{x,n}$  and  $ma_{y,n}$  denote the moments of order  $n$  of the gain on the in-phase  
5 path and on the quadrature path respectively,  $H_n$  denotes the Hermite polynomial of order  $n$  and  
6  $k$  is an integer larger than 2.

1     5.     (Original) The method as claimed in claim 1, in which said sender is a mobile terminal,  
2     said receiver system belongs to a radiocommunication network and in which said burst is sent so  
3     as to request access to the network.

1     6.     (Original) The method as claimed in claim 1, in which said sender comprises a base  
2     station of a radiocommunication network, said receiver system forms part of a mobile terminal,  
3     and in which said burst is sent for the temporal synchronization between the sender and the  
4     receiver system.

1     7.     (Original) The method as claimed in claim 1, in which the detection of the burst is  
2     utilized to select fingers of a rake receiver.

1     8.     (Original) The method as claimed in claim 1, in which the burst belongs to a radio signal  
2     sequence sent periodically, and in which said moments are estimated over a duration covering  
3     several periods of said radio signal sequence.

1     9.     (Currently Amended) A radio receiver system capable of detecting a signal burst  
2     transmitted on the initiative of a sender on a radio channel listened to by the receiver system, the  
3     transmitted burst representing a predetermined digital sequence, the receiver system comprising  
4     means for estimating channel parameters representing a statistical behavior of the radio channel  
5     and means for evaluating a signal burst detection magnitude on the basis of the estimated  
6     channel parameters and of a correlation between a signal received at the receiver system and the  
7     predetermined digital sequence, wherein said estimated channel parameters comprise moments  
8     of order greater than 2 of the gain on the radio channel.

1     10.    (Cancelled)

11. (Original) A radio receiver system as claimed in claim 9, further comprising means for  
subjecting the received signal to a filtering matched to the predetermined digital sequence so as  
to obtain said correlation in the form of a complex signal having a first component on an in-  
phase path and a second component on a quadrature path.

12. (Original) A radio receiver system as claimed in claim 11, in which the evaluated  
detection magnitude is proportional to

$$\left( \sum_{n=0}^k \frac{1}{n!(\sqrt{N_0})^n} \cdot H_n \left( \frac{z_x}{\sqrt{N_0}} \right) \cdot ma_{x,n} \right) \cdot \left( \sum_{n=0}^k \frac{1}{n!(\sqrt{N_0})^n} \cdot H_n \left( \frac{z_y}{\sqrt{N_0}} \right) \cdot ma_{y,n} \right), \text{ where } N_0 \text{ denotes the}$$

estimated power of the noise on the radio channel,  $z_x$  and  $z_y$  denote said first and second  
components,  $ma_{x,n}$  and  $ma_{y,n}$  denote the moments of order  $n$  of the gain on the in-phase path and  
on the quadrature path respectively,  $H_n$  denotes the Hermite polynomial of order  $n$  and  $k$  is an  
integer larger than 2.

13. (Original) A radio receiver system as claimed in claim 9, belonging to a  
radiocommunication network, said sender being a mobile terminal, and said burst being sent so  
as to request access to the network.

14. (Original) A radio receiver system as claimed in claim 9, forming part of a mobile  
terminal, said sender comprising a base station of a radiocommunication network, and said burst  
being sent for the temporal synchronization between the sender and the receiver system.

15. (Original) A radio receiver system as claimed in claim 9, further comprising means for  
utilizing the detection of the burst to select fingers of a rake receiver.

- 1 16. (Original) radio receiver system as claimed in claim 9, in which the burst belongs to a
- 2 radio signal sequence sent periodically, and in which said moments are estimated over a duration
- 3 covering several periods of said radio signal sequence.